Appendix K

Air-Ground Integration

GENERAL

K-1. Effective integration of air and ground assets is required to successfully conduct cavalry operations. Each element (air and ground) brings unique capabilities and limitations to the cavalry commander. Integration starts at home station with the implementation of effective SOPs, habitual relationships, and AGT training and continues through planning, preparation, and execution of the operation.

FUNDAMENTALS

K-2. To ensure effective integration, commanders and staffs must consider some basic fundamentals for air-ground integration. These fundamentals provide the framework for enhancing the effectiveness of both air and ground maneuver assets. In all cases, the cavalry commander must employ air cavalry assets as a maneuver force. This basic premise, when coupled with the fundamentals of air-ground integration, will ensure air cavalry is synchronized in the squadron operation. The fundamentals are—

- Understanding capabilities and limitations.
- Use of SOPs.
- C^2.
- Maximizing available assets.
- Employment methods.
- Synchronization.

CAPABILITIES AND LIMITATIONS

K-3. To successfully integrate air and ground elements, the SCO, staff, and subordinate commanders must understand the capabilities and limitations of each element. Table F-1 outlines the capabilities and limitations for the employment of air cavalry assets. Table F-2 outlines the capabilities and limitations for the employment of ground cavalry assets.

Table K-1. Capabilities and Limitations for the Employment of Air Cavalry Assets

AIR CAPABILITIES	AIR LIMITATIONS
Terrain independent maneuver	Degraded limited visibility operations
Adds speed to operations	Lack of detailed reconnaissance
Adds agility to operations	Limited station times
Adds depth to operations	Crew endurance
Increases tempo of operations	Aircraft maintenance requirements
Digital connectivity	Cannot hold terrain
Enhanced optics	Increased Class III and/or Class V requirements
Elevated observation platform	FARP survivability
Video reconnaissance	Weather limitations
Long range direct fire capability	AA survivability
Precision munition guidance	Reaction time from decreased REDCON
Enhanced FS capabilities	Survivability in close operations
Enhanced night survivability and/or capability	

Table K-2. Capabilities and Limitations for the Employment of Ground Cavalry Assets

GROUND CAPABILITIES	GROUND LIMITATIONS
Hold terrain	Terrain restrictions
Detailed reconnaissance	Movement (visibility and/or obstacles)
Continuous operations	Responsiveness over distances
Self-supporting	Limited breach capabilities
C^2 organization	Limited long range acquisition
Firepower and protection	
Organic FS (mortars)	

STANDING OPERATING PROCEDURES

K-4. To ensure standardization throughout the squadron, SOPs must be established to provide a common basis for the integration of air-ground operations. The SOP may include, but is not limited to—

- Common terminology.
- Conditions for AGT employment.
- Specialized task organizations.
- Roles and responsibilities for planning and preparation.
- Air-ground coordination checklists.
- Battle handover checklists.
- Air passage of lines procedures.
- Recognition signals.
- Antifratricide markings and procedures.
- Clearance of fires procedures.
- Liaison requirements.
- Reporting.
- Communications architecture.
- Movement techniques

- Actions on contact drills (indirect fires, observation, direct fires from inferior force, direct fires from superior force, fixed wing, rotary wing, civilians and noncombatants).
- Battle drills (breach operations, close reconnaissance, counter-reconnaissance, fix and bypass, zone reconnaissance, area reconnaissance, route reconnaissance, screen operations, hasty attack).

COMMAND AND CONTROL

K-5. The commander must define the control of the air and ground operation. Two methods of control are used. Under both methods, control normally rests with the commander who owns the terrain the operation is covering.

SQUADRON CONTROL

K-6. The normal method of C^2 for air cavalry assets is to retain them under squadron control. The ACT commanders operate on the squadron command network and may coordinate detailed actions with the GCTs on the air or ground troop command network. The SCO ensures the focus of the ACTs remains synchronized, clarifies coordination, and issues orders to each troop as necessary. However, this method should not preclude cross talk and coordination between ground and ACTs. The level of cross talk and coordination for each type operation may be outlined in the squadron SOP or OPORD. Advantages and disadvantages are METT-T dependent.

Advantages

K-7. Advantages may include the following:

- Enhanced situational awareness at the squadron level.
- Allows the SCO to focus combat power as the situation develops (flexibility).
- Enhanced visibility on the logistics status of the ACT at the squadron level.
- Reduces the C^2 requirements on the ground troop commander.
- Streamlines reporting and FS requests.
- Reduces planning, liaison, and rehearsal requirements at the troop level.
- Increases the tempo of squadron level operations.
- Easier to establish and execute squadron level A^2C^2 plan.

Disadvantages

K-8. Disadvantages may include the following:

- Less situational awareness below the troop level.
- Air and ground synchronization is more difficult at the troop level.
- Higher potential for fratricide.
- Clearance of direct and mortar fires are more difficult.

- Air passage of lines are more difficult.
- Close reconnaissance and target handovers are more difficult.
- Increased traffic on the squadron command network.

AIR-GROUND TEAMS

K-9. The second method of C^2 is the formation of air- ground teams. This is normally a temporary relationship to deal with a specific situation. OPCON is the command relationship used. AGT formation is best used when decentralized troop operations are required. Route reconnaissance, area reconnaissance, reconnaissance in force, movement to contact as an advanced guard, feints, raids, screens, and area security are operations that may be enhanced by the formation of AGTs. Based on METT-T, control may be with either the ground or air cavalry commander. Control by the ACT is appropriate when—

- Limited ground cavalry assets in the area—air cavalry owns the battlespace.
- Ground troop commander or CP not in position to control.
- ACT commander has better situational awareness.
- Operation is of limited duration.

Control by the GCT is appropriate when—

- Limited air cavalry assets in the area—ground cavalry owns the battlespace.
- Ground troop commander or CP in position to control.
- GCT commander has better situational awareness.
- Operation is of longer duration.

The advantages and disadvantages of forming AGTs are METT-T dependent.

Advantages

K-10. Advantages may include the following:

- Enhanced situational awareness below the troop level.
- Allows the SCO to weight the ME.
- Enhanced close reconnaissance and security operations.
- Facilitates decentralized operations.
- Streamlines clearance of direct and mortar fires in the close fight.
- Increases GCT ability to observe mortar fires.
- Reduces traffic on the squadron command network.
- Air cavalry enhances GCT C^2 over extended distances.
- Enhanced response for downed aircraft in the close fight.
- Provides for greater security for the ACTs during day close reconnaissance and security missions.

Disadvantages

K-11. Disadvantages may include the following:

- Reduced situational awareness at the squadron level on ACT assets.
- Reduces SCO's ability to reorient air cavalry assets.
- Increases time required to clear indirect artillery fires.
- Less visibility on logistics status of the ACTs—FARP requirements.
- Squadron level A^2C^2 more difficult.
- Increased C^2 and liaison requirements at troop level.
- Does not maximize ACTs ability to add depth and tempo to squadron operation.

MAXIMIZING AVAILABLE ASSETS

K-12. ACTs are not sufficiently manned and equipped to effectively conduct independent, sustained 24-hour operations. Intelligence must drive maneuver—the commander's intent and the IPB process focuses the employment of the ACTs. ACTs should be employed at the platoon or troop level to ensure they have sufficient combat power and C^2 to achieve the SCO's intent. Attempting to maintain a 24-hour presence with air cavalry assets may negate many of the ACTs capabilities and result in the ACTs being piecemealed into the fight.

EMPLOYMENT METHODS

K-13. Cavalry squadrons have two options for the employment of the ACTs. The first option is to employ troops simultaneously, with separate areas of operation. The second option is to employ the ACTs sequentially, with the same or different areas of operation. In either option, the ACTs may be retained under squadron control or task organized with ground cavalry assets as AGTs.

SIMULTANEOUS OPERATIONS

K-14. The cavalry SCO employs simultaneous operations when—

- Covering extended distances or a larger AO.
- Squadron must orient in multiple directions.
- Operation is of limited duration.
- IPB allows commander to focus ACTs at decisive point and time.
- Maximum reconnaissance forward is required.
- Maximum security is required to provide early warning and reaction time for the squadron.
- Threat requires the ACTs to operate primarily at night for survivability.

SEQUENTIAL OPERATIONS

K-15. The cavalry SCO employs sequential operations when—

- AO is smaller.
- Squadron is oriented in a single direction.
- Operation requires extended coverage in time.

- IPB does not allow the commander to focus ACTs at decisive point or time.
- Maximum reconnaissance or security forward not required.
- ACT held as a squadron reserve or required for follow-on operations.

SYNCHRONIZATION

K-16. The integration of air cavalry into the decision making process is an important and unique aspect of staff planning in any cavalry organization. The employment of air cavalry may be the significant difference between COAs presented to the commander. When developing COAs, air-ground synchronization should be planned along the following guidelines:

INTELLIGENCE

K-17. As stated above, intelligence must drive the maneuver plan. Effective intelligence preparation of the battlefield will often make it obvious how and when to employ air cavalry assets. To provide the commander with a clear picture of when and where to employ air cavalry, the IPB process should answer the following fundamental questions:

- Where is the enemy currently located?
- Where is the enemy going and/or what is his repositioning criteria and routes?
- Where can we best acquire or engage the enemy?
- When will he be there?
- What weapons system does the enemy have that can effect air cavalry assets?

Answering these questions will allow the commander and staff to—

- Designate reconnaissance objectives and focus.
- Determine priority intelligence requirements to facilitate employment of the air cavalry.
- Develop a R&S plan with depth and redundancy.
- Determine required combat multipliers (lethal and nonlethal SEAD), AGT task organization, and ACT weapons configurations.
- Determine bypass and engagement criteria.
- Determine REDCON levels and employment timelines or triggers.
- Determine holding area locations, FAA locations, and FARP locations.
- Focus on developing a plan that pits the ACTs capabilities against enemy weaknesses.

MANEUVER

K-18. ACTs should be employed with many of the same considerations for ground cavalry assets. ACTs fight as maneuver forces in platoon or troop strength. This allows sufficient combat power for maintaining enemy contact, actions on contact, FARP rotations, developing the situation, and ensures continuous and seamless C^2. Standard maneuver graphics, movement techniques, and reporting requirements enhances air-ground

integration and eases the planning requirements at the squadron level. As with ground cavalry assets, air cavalry requires varying guidance and planning considerations based on the mission, commander's intent, and other METT-T requirements. Maneuver planning considerations for the employment of air cavalry are as follows:

Reconnaissance Operations

K-19. Reconnaissance is an inherent task to all missions conducted by ACTs. Early development and integration of the ACTs in the squadron R&S plan allows parallel planning and ensures assets are available to meet the commander's intent. A clear and realistic task and purpose, as well as engagement criteria, are essential to ensure the ACTs remain focused on the reconnaissance objective. Normally, air cavalry is primarily force oriented and employed ahead of ground forces. This will facilitate rapid movement of GCTs and exploit the capability of air cavalry to increase the tempo of squadron operations. However, this does not imply that ACTs are not deliberate in executing movement techniques and maximizing stand off acquisition capabilities. When task organizing AGTs, the commander delineates employment constraints or restrictions to ensure the ACTs are employed within his intent. These constraints and restrictions may be outlined in the unit's SOP, OPORD, or verbal guidance from the SCO. Figures K-1 through K-6 show TTPs for integrated reconnaissance operations.

Security Operations

K-20. During security operations, the ACT's main role is still reconnaissance. The ACT's reconnaissance effort is focused on providing the squadron early warning, reaction time, and maneuver space. ACTs should be employed with sufficient distance forward or to the flank of ground forces to provide the maximum reaction time, normally within the range of supporting indirect fires. In unique situations, the ACTs may be employed in the attack role to conduct hasty or deliberate attacks to destroy enemy reconnaissance and security forces. However, the loss of the ACTs in the reconnaissance role often outweighs the advantages of employing them in the attack helicopter role. In the reconnaissance role, ACTs should maximize the use of indirect (mortars, artillery and CAS), as well as target handovers to attack helicopters or GCTs to meet the commander's intent for enemy destruction. This reduces the risk of the ACT becoming decisively engaged and losing mission focus.

AIR-GROUND INTEGRATION ROUTE RECONNAISSANCE

- As an AGT, a GCT, and an ACT conduct coordinated route reconnaissance operations

- The ACT establishes a platoon boundary to separate the zone.

- The ACT operates with two ACTM conducting bounding overwatch with the commander's team back.

- Checkpoints, NAIs, and PLs are used to identify critical reconnaissance objectives and to control maneuver.

- ACTMs reconnaissance adjacent terrain/ routes, BUAs, ford sites, provide security, and assist the maneuver of the ground scout platoons. The ACTMs are operating on the ground platoon internal networks.

- The ACT commander cross talks with the GCT commander on the GCT command network to coordinate the reconnaissance effort. The ACT commander conducts face-to-face cross talk (as required) and assists the GCT commander with C^2.

- The ACT is primarily force oriented, focused on security and hasty route reconnaissance, while the GCT conducts a deliberate route reconnaissance.

- The ACT provides far side security, locates bypasses, and provides early warning to the GCT at chokepoints and obstacles.

- During actions on contact the ACT conducts target handover to the GCT and develops the situation to the flanks and forward of the GCT.

- To maintain tempo and maximum reconnaissance forward, the ACT commander's team temporarily relieves forward ACTM's for FARP rotation. As the commander's team rotates to the FARP, the senior platoon leader takes over C^2 for the ACT.

- GCT mortar section positions in the center of the zone to provide suppressive fires for the forward ACTMs.

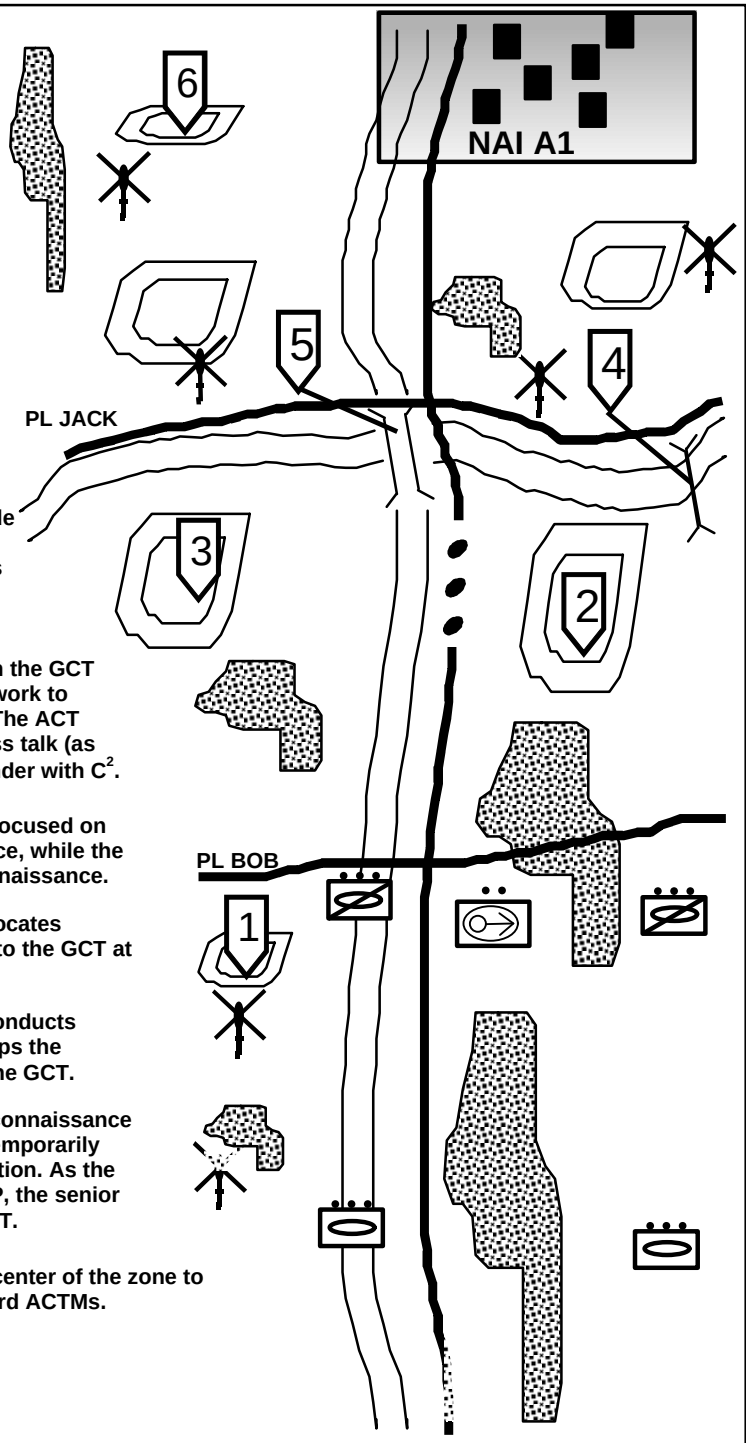

Figure K-1. Air-Ground Integration—Route Reconnaissance

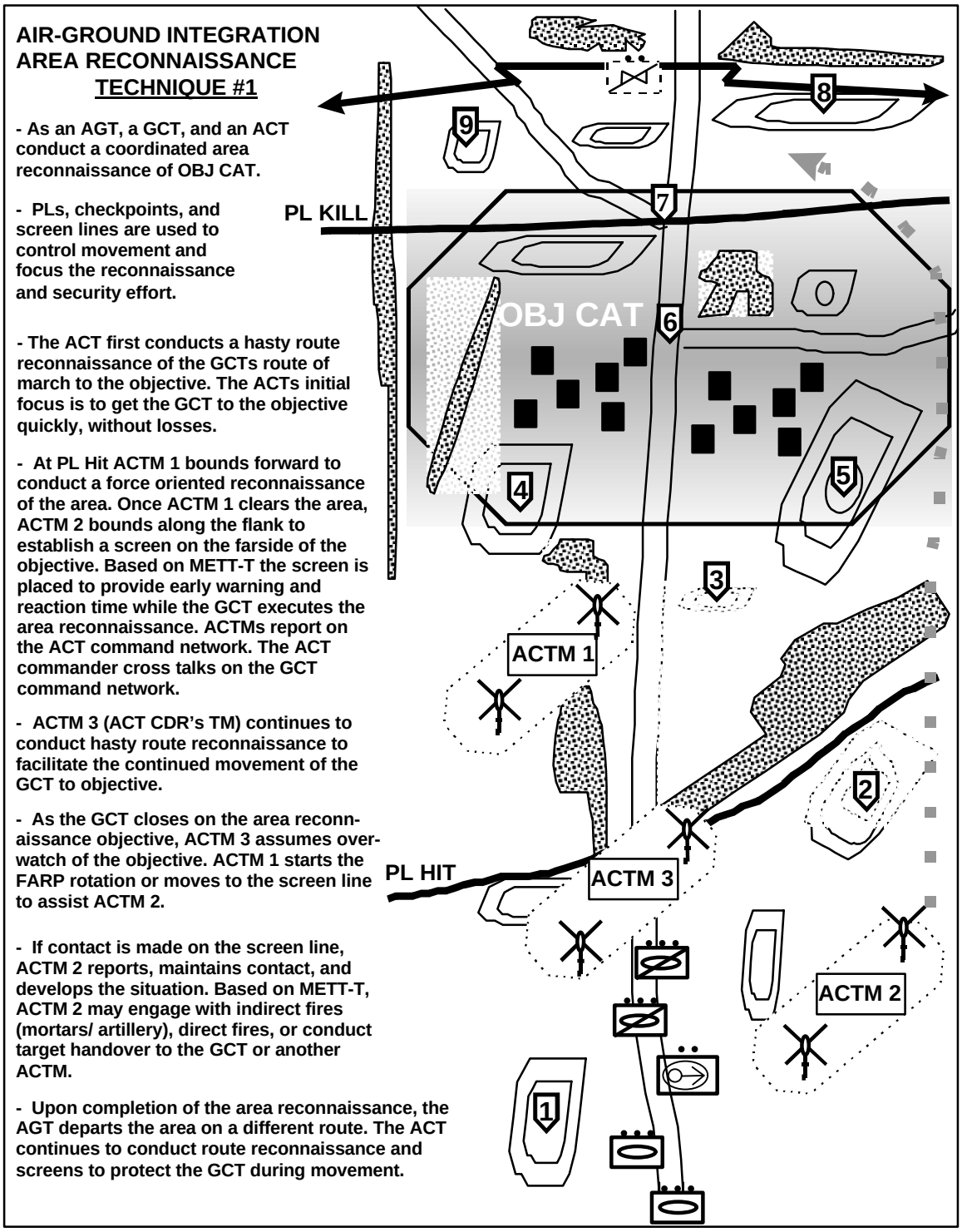

Figure K-2. Air-Ground Integration—Area Reconnaissance (Technique 1)

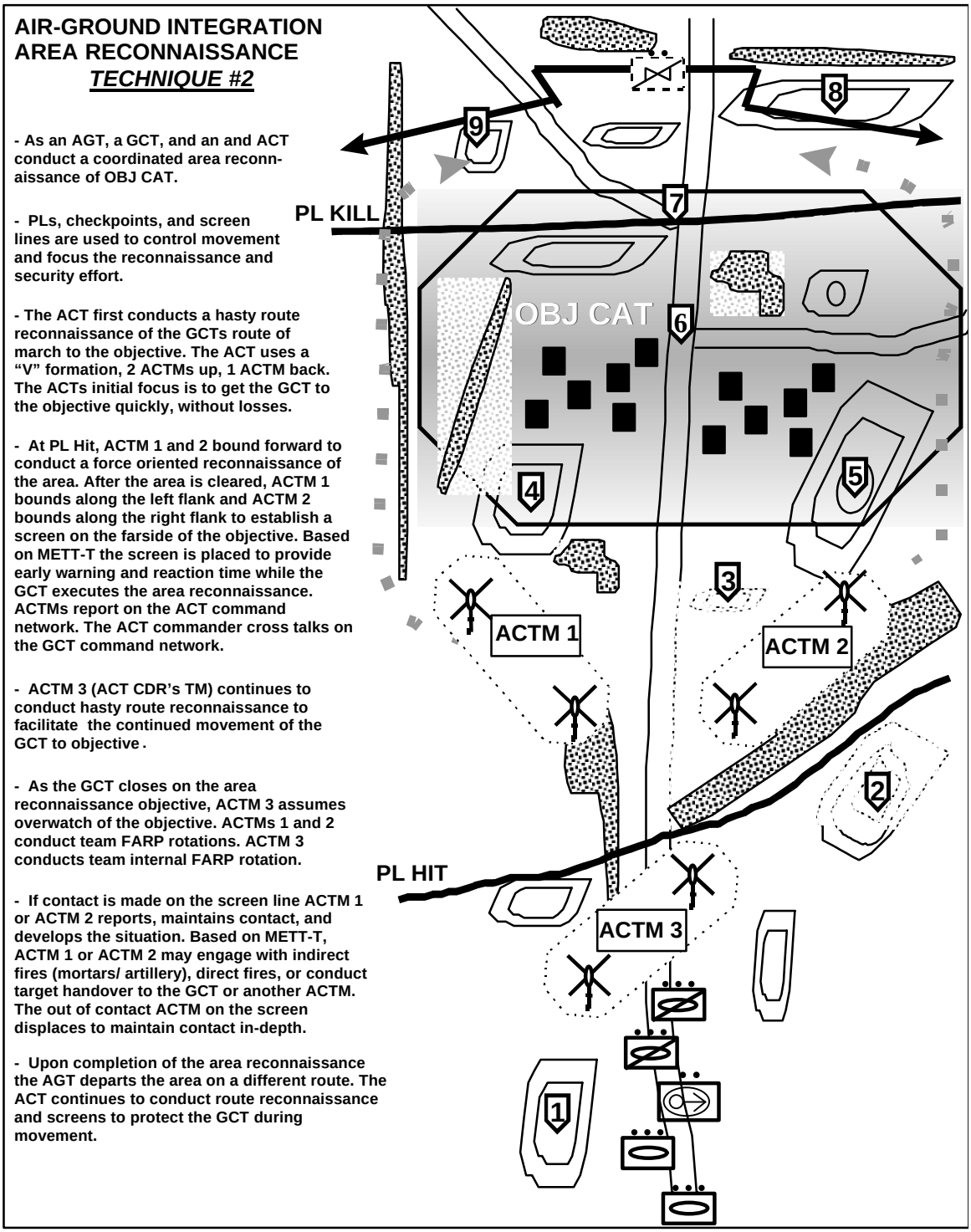

Figure K-3. Air-Ground Integration—Area Reconnaissance (Technique 2)

AIR-GROUND INTEGRATION
AREA RECONNAISSANCE
TECHNIQUE #2

- As an AGT, a GCT, and an ACT conduct a coordinated zone reconnaissance.

- The ACT establishes a platoon boundary, with troop, platoon, and team graphics to facilitate C^2.

- PLs, OPs, checkpoints, NAIs, and TIRS are used to control movement and focus the reconnaissance effort.

- The ACT operates with three ACTM, two in zone conducting bounding overwatch, with the third as a ROS team.

- FARP rotations are conducted by team. If METT-T forces the teams to conduct internal FARP rotations, the zone reconnaissance effort stops, and the ACTM establishes a screen.

- The troop commander operates independent of the the ACTMs to better facilitate C^2.

- When working as part of a AGT the reconnaissance effort for the ACT is usually force oriented versus terrain oriented.

- The ACTMs move forward of the GCT focusing on key terrain, routes in zone, bypass of obstacles, and maintaining contact with large enemy formations.

- Bypass criteria must be clearly defined. The ACT must not become decisively engaged by ancillary enemy forces and distracted from their primary reconnaissance focus.

- During actions on contact the ACT develops the situation, conducts a target hand-off with the GCT, and continues the reconnaissance effort.

- The ACT commander passes spot reports to the GCT commander on the GCT command network.

- Once the ACT reaches the LOA they establish and maintain a screen until relieved by the squadron or the GCT. An ALOA forward of the LOA may be used to provide additional early warning.

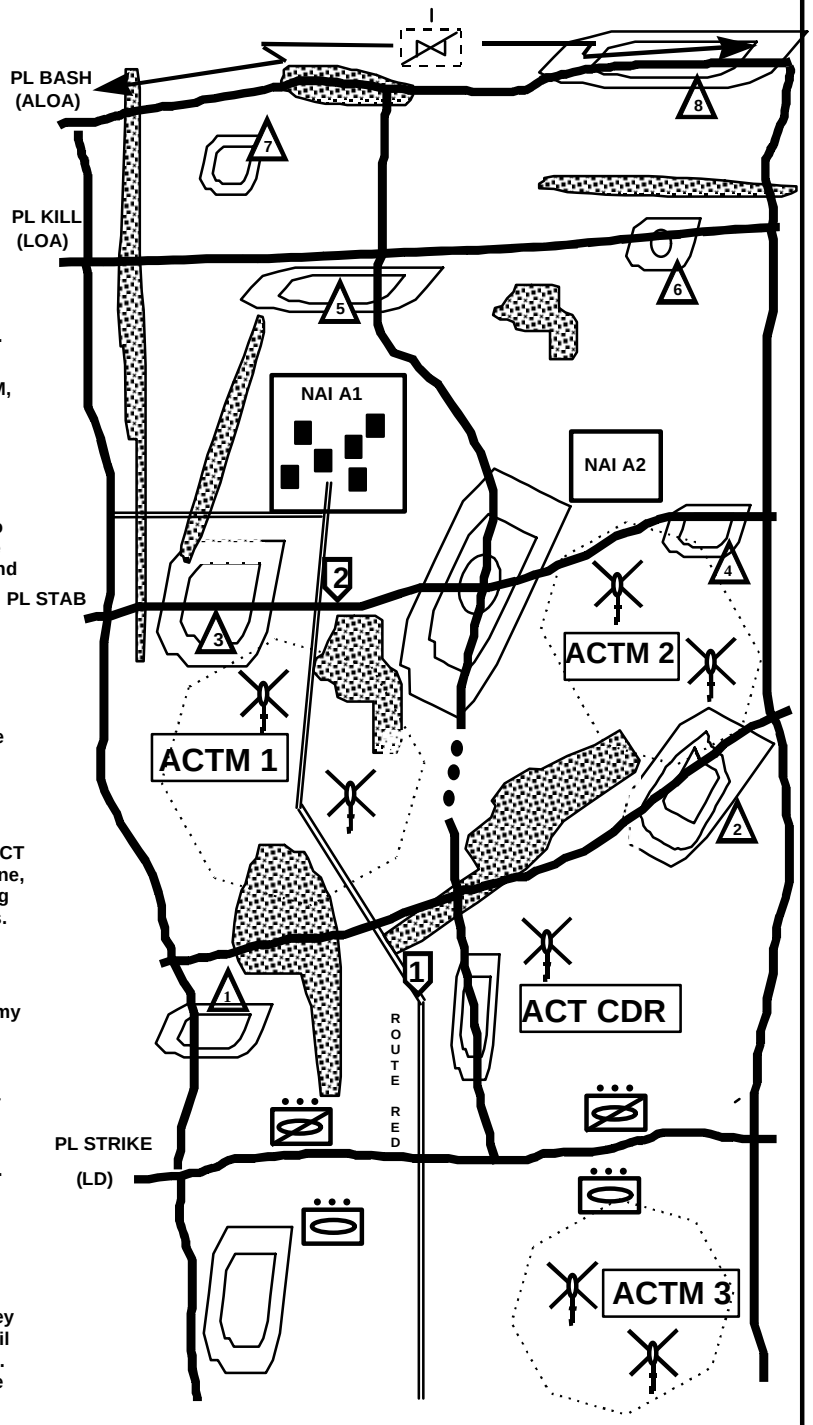

Figure K-4. Air-Ground Integration – Zone Reconnaissance (Technique 1)

AIR-GROUND INTEGRATION
ZONE RECONNAISSANCE
TECHNIQUE #2

- As an AGT, a GCT, and an ACT conduct a coordinated zone reconnaissance.

- PLs, OPs, checkpoints, NAIs, and TIRS are used to control movement and focus the reconnaissance effort.

- The ACT operates with three SWT. The platoon on the left is designated the ME and is task organized with three aircraft. The platoon on the right is the supporting effort and is task organized with two aircraft forward with one aircraft providing security for the ACT commander.

- FARP rotation for the ME platoon is team internal. The commander's security aircraft assists with ROS in the SE platoon. The ME platoon leader C^2s the ACT when the ACT commander conducts FARP rotation.

- The ACT commander's team centrally locates to facilitate C^2.

- The ME platoon conducts force oriented zone reconnaissance with two aircraft forward. The third aircraft focuses on the route of march for the GCT.

- The SE platoon conducts force oriented zone reconnaissance and may screen battalion avenues of approach (in conjunction with a ground scout platoon) to provide security as the GCT main body moves along the route.

- Bypass criteria must be clearly defined. The ACT must not become decisively engaged by ancillary enemy forces and distracted from their primary reconnaissance focus.

- During actions on contact the ACT develops the situation, conducts a target hand-off with the GCT, and continues the reconnaissance effort.

- The ACT commander passes reconnaissance information to the GCT commander on the GCT command network.

- Once the ACT reaches the LOA they screen until relieved by the squadron or the GCT. An ALOA forward of the LOA may be used to provide additional early warning.

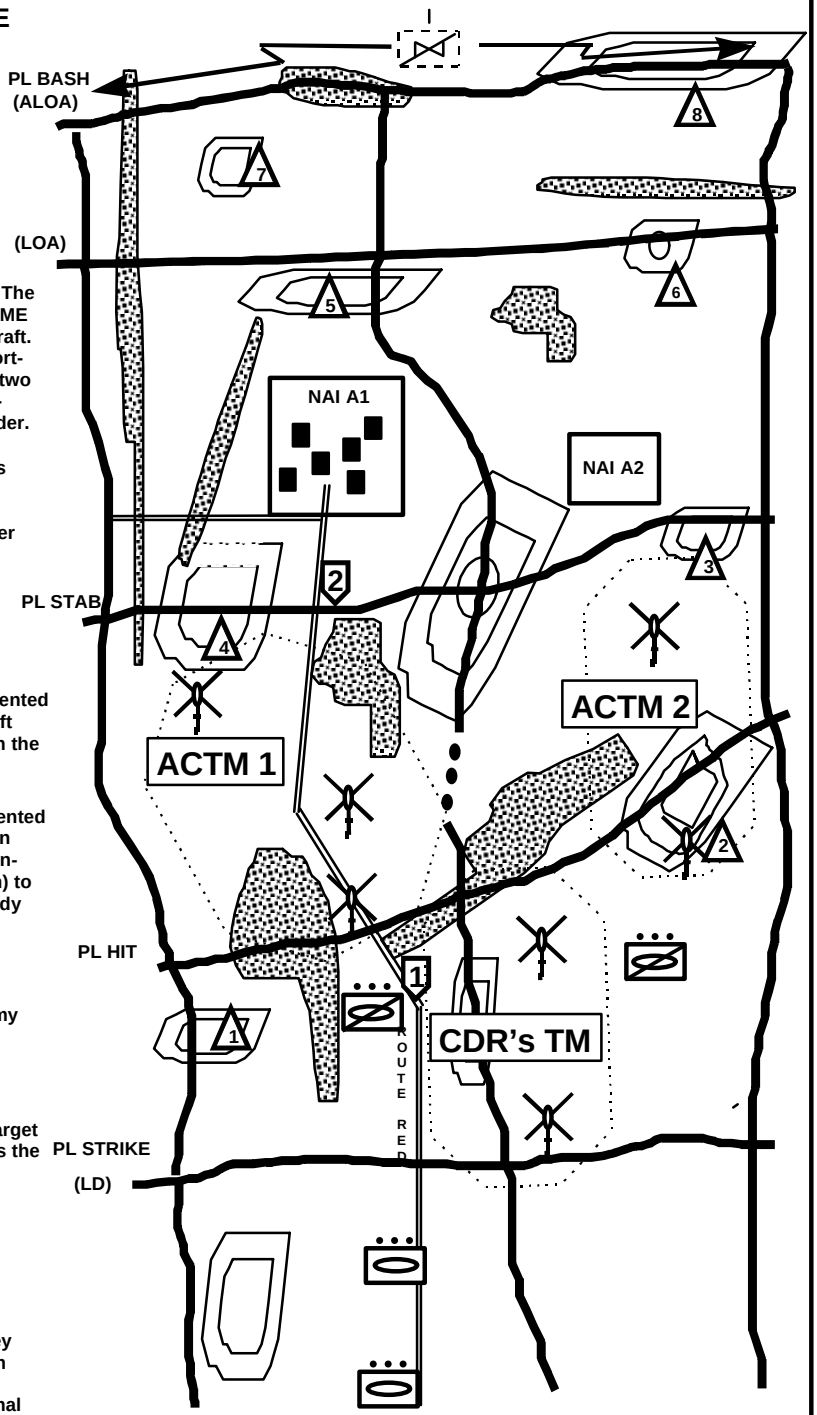

Figure K-5. Air-Ground Integration—Zone Reconnaissance (Technique 2)

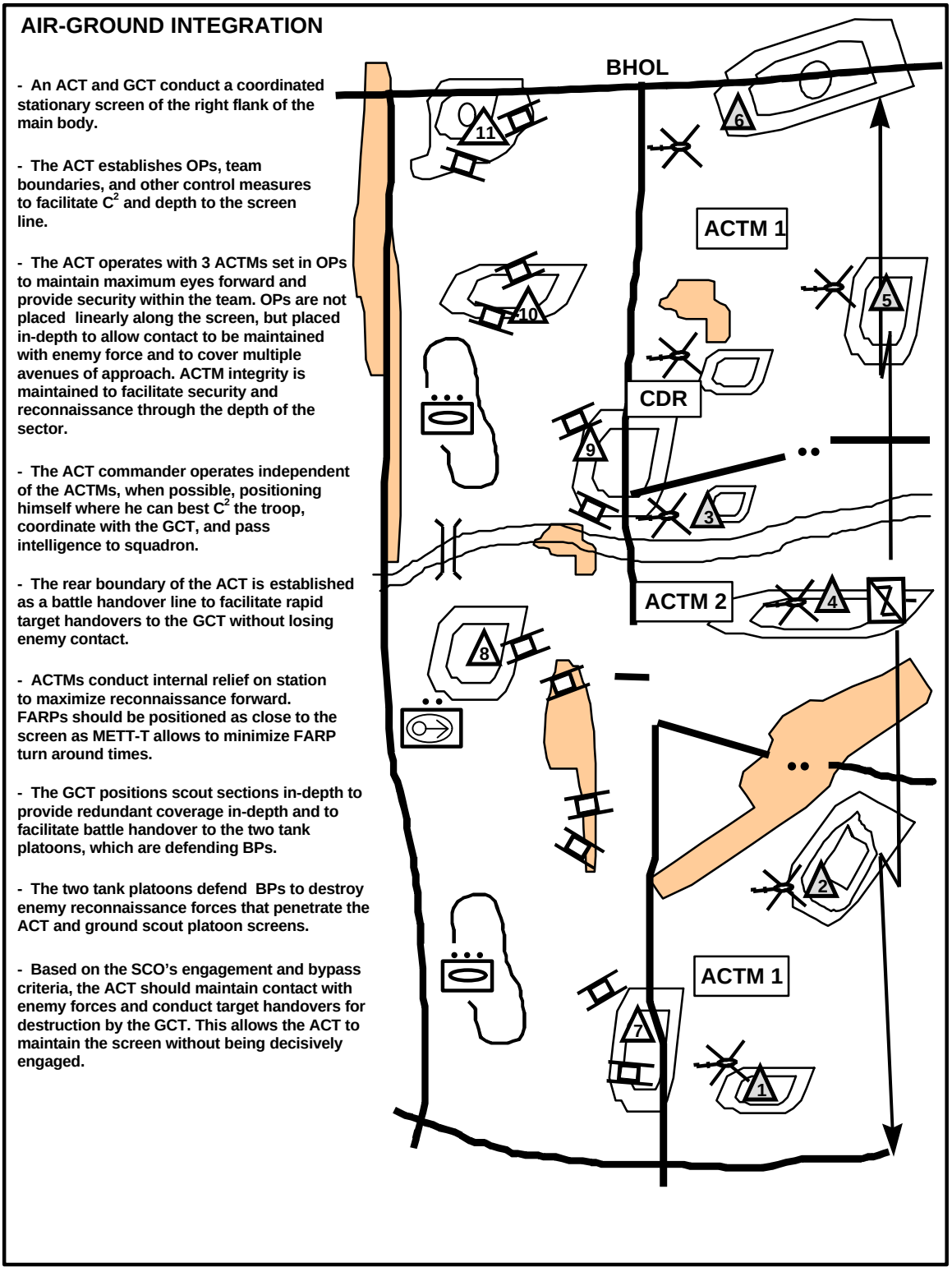

Figure K-6. Air-Ground Integration—Stationary Flank Screen

Fire Support

K-21. FS coordination is critical to ensure the commander's essential FS tasks are accomplished, as well as expediting clearance of fires. The squadron FSO must ensure ACTs are integrated into the FS observer plan. ACTs can facilitate long range, accurate, and timely indirect fires through the use of the MMS and onboard digital capabilities. When task organized in AGTs, the ACTs should be integrated into the GCT FS plan for observing troop mortar and artillery fires. To facilitate clearance of fires, the AGT commander and FIST must maintain situational awareness on the location of all air and ground assets. Standard maneuver and FS coordination measures, as well as accurate SITREPs will speed this process. During AGT operations, the squadron FSO may have less situational awareness on the location of all ACT assets operating on the battlefield. This may require clearing each of the grids fired, within the AGT sector or zone, to reduce the chance of fratricide. ACTs normally process all of their fires directly through the squadron FSO when engaging targets beyond the CFL. If targets are being engaged short of CFL, the ACT should process the call for fire through the GCT FIST. To enhance survivability for the employment of ACTs the FSO should consider planning and executing lethal and nonlethal SEAD. Based on METT-T, SEAD may be used to suppress, destroy, or deceive enemy AD systems to facilitate the ACTs maneuver plan. Localized and/or complimentary SEAD may be an EFST for cavalry SCO. Localized SEAD must be event driven and should be war-gamed to ensure the desired effect can be achieved based on target location, volume of fire, and timing. Complimentary SEAD is a continual process of engaging AD systems throughout the AO as they are identified.

Mobility and Survivability

K-22. ACTs can be used to assist with identification of obstacles and setting the conditions for breaching SOSR. Based on sensor conditions, the OH-58D MMS and VIXL capability can be used to identify obstacle makeup, complexity, and potential bypasses. If a bypass is not available, the ACT may be used to help set the condition for a breach. Although ACTs have limited firepower they may be used to provide suppression during the first phase of SOSR. During the obscuration phase, the ACT can assist the GCT FIST with adjusting artillery and mortar delivered smoke. During the secure and reduction phases, the ACT can provide a screen or overwatch position on the far side of the obstacle to identify and/or destroy repositioning enemy forces.

Logistics

K-23. To maintain maximum reconnaissance forward ACTs require frequent rotations to the FARP. During reconnaissance operations ACTs will consume greater amounts of Class III. During security operations ACTs will

consume high levels of both Class III and Class V. Positioning of FARPs should be as far forward as METT-T allows to reduce FARP turnaround times. Security and enemy FA ranges are the primary considerations for forward employment of the FARP. To provide rapid maintenance recovery and the capability to repair minor aircraft faults, the squadron maintenance troop should locate a maintenance contact team in each FARP.

Battle Command

K-24. The SCO must determine the command relationship for the employment of the ACTs. When task organizing AGTs the SCO and staff should consider the impact of placing additional C^2, combined planning, combined rehearsal, and liaison requirements on the ground and air troop. If limited time is available for troop leading procedures, the AGT will not have sufficient time to develop, brief, and rehearse a synchronized plan. When time is available, the most effective means of conducting integrated planning is the use of the LNO. The troop (air or ground) being placed OPCON should provide a full time LNO to the AGT commander to facilitate coordination during planning, preparation, and if possible, during execution. The final step during the preparation phase is to conduct the confirmation brief. The SCO must ensure that the AGT commander understands his intent, restrictions, and constraints for the employment of the air cavalry assets. Additionally, the SCO may include the conditions for bringing the air cavalry assets back under squadron control.